

## FASTENER INSTALLATION TOOLS, SYSTEMS, AND METHODS OF USE

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### Abstract of the Disclosure

A fastener installation tool to install fasteners, such as rivets, risers, standoffs, and other types of fasteners operates upon vacuum and air pressure. Fasteners are installed with minimal reactive forces to the operator's hand, thus  
10 reducing the risk of repetitive injuries to the operator's body. Vacuum retains the fastener within the tool tip and retracts a piston, until an operator simultaneously presses the fastener against a work piece and actuates an actuation element on the tool. This causes air pressure to quickly thrust the piston against a hammer pin to drive in the fastener, transferring kinetic energy from the piston to the fastener  
15 without appreciable kick-back to the operator. A control system provides a source of vacuum and air pressure to the tool. Methods of using a fastener installation tool are also described.

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